

What is claimed is:

- Sub 1*
1. A low irritation nasal composition for prevention and treatment of cold and influenza viruses comprising pyroglutamic acid and an organic acid having a dissociation constant (pK_a) value from about 3.0 to about 5.0 wherein the combination of said pyroglutamic and organic acids provides a surface pH of the nasal cavity tissue from about 3.5 to about 5.5.
 2. The composition according to claim 1 wherein the pyroglutamic acid is at a level from about 0.01% to about 20% of the composition.
 3. The composition according to claim 1 comprising from about 0.01% to about 10.00% of an organic acid.
 4. The composition according to claim 3 wherein the organic acid is selected from the group consisting of ascorbic acid, mono-, di-, tri- carboxylic acids and mixtures thereof.
 5. The composition according to claim 4 wherein the organic acid is selected from the group consisting of salicylic, fumaric, benzoic, glutaric, lactic, citric, malonic, acetic, glycolic, malic, adipic, succinic, aspartic, phthalic, tartaric, glutamic, gluconic, and mixtures thereof.
 6. The composition according to claim 1 comprising a mucoadhesive agent wherein the viscosity of the final composition is less than about 1000 cps wherein the composition has a pH of about 3.5.
 7. The composition according to claim 5 wherein the mucoadhesive agent is selected from the group consisting of carboxypolymethylene; carboxyvinyl polymers; homopolymers of acrylic acid crosslinked with an allyl ether of pentaerythritol; homopolymers of acrylic acid crosslinked with an allyl ether of sucrose; homopolymers of acrylic acid crosslinked with divinyl glycol; and mixtures thereof.
 8. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 1.
 9. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 5.
 10. The composition according to claim 1 comprising a chelating agent.
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- Further*

11. The composition according to claim 10 wherein the chelating agent is at a level from about 0.01% to about 10% of the composition.
12. The composition according to claim 11 wherein the chelating agent is selected from the group consisting of phytic acid, disodium and calcium salts of ethylene diamine tetraacetic acid (EDTA), tetrasodium EDTA, sodium hexametaphosphate (SHMP), di(hydroxyethyl)glycine,8-hydroxy-quinoline and mixtures thereof.
13. The composition according to claim 10 comprising a mucoadhesive agent wherein the viscosity of the final composition at a pH of 3.5 is less than about 1000 cps.
14. The composition according to claim 13 wherein the mucoadhesive agent is selected from the group consisting of carboxypolymethylene; carboxyvinyl polymers; homopolymers of acrylic acid crosslinked with an allyl ether of pentaerythritol; homopolymers of acrylic acid crosslinked with an allyl ether of sucrose; homopolymers of acrylic acid crosslinked with divinyl glycol; and mixtures thereof.
15. The composition according to claim 14 wherein the organic acid comprises from about 0.01% to about 10% of the composition.
16. The composition according to claim 15 wherein the organic acid is selected from the group consisting of ascorbic acid, mono-, di-, tri- carboxylic acids and mixtures thereof.
17. The composition according to claim 16 wherein the organic acid is selected from the group consisting of salicylic, fumaric, benzoic, glutaric, lactic, citric, malonic, acetic, glycolic, malic, adipic, succinic, aspartic, phthalic, tartaric, glutamic, gluconic, and mixtures thereof.
18. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 10.
19. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 13.
20. The composition according to claim 1 comprising metal salts.
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21. The compositions according to claim 20 wherein the metal salt is at a level from about 0.01% to about 10% of the composition.
22. The compositions according to claim 21 wherein the metal salt is selected from the group consisting of acetates, ascorbates, chlorides, benzoates, citrates, gluconates, glutarates, lactates, malates, malonates, salicylates, succinates and combinations thereof.
23. The composition according to claim 22 wherein the organic acid comprises from about 0.01% to about 10% of the composition.
24. The composition according to claim 23 wherein the organic acid is selected from the group consisting of ascorbic acid, mono-, di- and tri- carboxylic acids and mixtures thereof.
25. The composition according to claim 24 wherein the organic acid is selected from the group consisting of salicylic, fumaric, benzoic, glutaric, lactic, citric, malonic, acetic, glycolic, malic, adipic, succinic, aspartic, phthalic, tartaric, glutamic, gluconic, and mixtures thereof.
26. The composition according to claim 20 comprising a mucoadhesive agent wherein the viscosity of the final composition is less than about 1000 cps wherein the composition has a pH of about 3.5.
27. The composition according to claim 26 wherein the mucoadhesive agent is selected from the group consisting of carboxypolyethylene; carboxyvinyl polymers; homopolymers of acrylic acid crosslinked with an allyl ether of pentaerythritol; homopolymers of acrylic acid crosslinked with an allyl ether of sucrose; homopolymers of acrylic acid crosslinked with divinyl glycol; and mixtures thereof.
28. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 20.
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29. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 23.
30. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 26.

31. The composition according to claim 10 comprising a metal salt.
32. The compositions according to claim 31 wherein the metal salt is from about 0.001% to about 20% of the composition.
33. The compositions according to claim 32 wherein the metal salt are selected from the group consisting of acetates, ascorbates, chlorides, benzoates, citrates, gluconates, glutarates, lactates, malates, malonates, salicylates, succinates and combinations thereof.
34. The composition according to claim 31 wherein the chelating agent is at a level from about 0.01% to about 10% of the composition.
35. The composition according to claim 34 wherein the chelating agent is selected from the group consisting of phytic acid, disodium and calcium salts of ethylene diamine tetraacetic acid (EDTA), tetrasodium EDTA, sodium hexametaphosphate (SHMP), di(hydroxyethyl)glycine,8-hydroxyquinoline and mixtures thereof.
36. The composition according to claim 31 comprising a mucoadhesive agent wherein the viscosity of the final composition is less than about 1000 cps wherein the composition has a pH of about 3.5.
37. The composition according to claim 36 wherein the mucoadhesive agent is selected from the group consisting of carboxypolyethylene; carboxyvinyl polymers; homopolymers of acrylic acid crosslinked with an allyl ether of pentaerythritol; homopolymers of acrylic acid crosslinked with an allyl ether of sucrose; homopolymers of acrylic acid crosslinked with divinyl glycol; and mixtures thereof.
38. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 31.
39. A low irritation nasal composition for prevention and treatment of influenza viruses comprising an organic acid having a dissociation constant (pK_a) value from about 3.0 to about 5.0 and pH less than about 4 and a buffering capacity to provide a surface pH of the nasal cavity tissue from about pH 3.5 to about 5.5

40. The composition according to claim 39 comprising from about 0.01% to about 10% of the organic acid.
41. The composition according to claim 40 wherein the organic acid is selected from the group consisting of ascorbic acid, mono-, di-, tri- carboxylic acids and mixtures thereof.
42. The composition according to claim 41 wherein the organic acid is selected from the group consisting of salicylic, fumaric, benzoic, glutaric, lactic, citric, malonic, acetic, glycolic, malic, adipic, succinic, aspartic, phthalic, tartaric, glutamic, gluconic, and mixtures thereof.
43. The composition according to claim 39 comprising a mucoadhesive agent wherein the viscosity of the final composition is less than about 1000 cps wherein the composition has a pH of about 3.5.
44. The composition according to claim 43 wherein wherein the mucoadhesive agent is selected from the group consisting of carboxypolyethylene; carboxyvinyl polymers; homopolymers of acrylic acid crosslinked with an allyl ether of pentaerythritol; homopolymers of acrylic acid crosslinked with an allyl ether of sucrose; homopolymers of acrylic acid crosslinked with divinyl glycol; and mixtures thereof.
45. The composition according to claim 39 comprising a chelating agent.
46. The composition according to claim 45 wherein the chelating agent is at a level from about 0.01% to about 10.00% of the composition.
47. The composition according to claim 46 wherein the chelating agent is selected from the group consisting of phytic acid, disodium and calcium salts of ethylene diamine tetraacetic acid (EDTA), tetrasodium EDTA, sodium hexametaphosphate (SHMP), di(hydroxyethyl)glycine,8-hydroxyquinoline and mixtures thereof.
48. The composition according to claim 39 comprising metal salts.
49. The compositions according to claim 48 wherein the metal salts are at a level from about 0.001% to about 20% of the composition.

50. The compositions according to claim 49 wherein the metal salts are selected from the group consisting of acetates, ascorbates, chlorides, benzoates, citrates, gluconates, glutarates, lactates, malates, malonates, salicylates, succinates and combinations thereof.
51. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 39.
52. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 45.
53. A method for preventing and treating cold and influenza viruses wherein the method comprises the step of spraying into the nasal turbinates the composition according to claim 48.